CLAIMS

1   1.   A computer system including plural client nodes communicating data access requests

2   to one or more storage nodes, comprising:

3   logic means for associating one or more of the data access requests with respective

4   priorities;

5   logic means for sending the data access requests and priorities to the storage nodes;

6   and

7   logic means for ordering the data access requests at the storage nodes based on the

8   respective priorities, such that the data access requests are satisfied in consideration of their

9   respective priorities.

       2.   The system of Claim 1, further comprising:

          logic means for changing a priority of at least one data access request, prior to the

     request being satisfied by a storage node, to render an updated priority; and

4   logic means for reordering data access requests at the storage nodes, based on the

5   updated priority.

1   3.   The system of Claim 1, further comprising:

2   logic means for terminating at least one data access request.

1   4.   The system of Claim 1, further comprising means for loosely synchronizing the

2   computing and storage nodes with each other.

1   5.   The system of Claim 1, wherein each storage node includes at least one storage

2   computer and at least one data storage device, and the storage computer includes logic means for

3   sending no more than one data access request at a time to the data storage device, such that the data

4   storage device cannot reorder the sequence of responding to data access requests based on

5   considerations internal to the data storage device.

        6.   The system of Claim 1, wherein the system is a virtual shared disk system.

        7.   The system of Claim 1, wherein the priorities include time-based deadlines.

        8.   In a computer system having plural processors communicating data access requests to

2   a shared storage system, a computer-implemented method for satisfying at least two contemporaneous

3   data access requests to a single data storage device of the shared storage system, comprising the steps

4   of:

5   responding to the requests in an order defined at least in part by one or more

6   considerations external to the data storage device.

1   9.   The method of Claim 8, wherein the one or more considerations external to the data

2   storage device include a data request priority.

1   10.   The method of Claim 9, wherein the priority includes a time-based deadline.

1   11.   The method of Claim 10, further comprising:

2   associating one or more of the data access requests with respective priorities;

3   sending the data access requests and priorities to storage nodes in the shared storage

4   system, each storage node including at least one data storage device; and

5   ordering the data access requests at the storage nodes based on the respective priorities,

6   such that the data access requests are satisfied in accordance with their respective priorities.

12.   The method of Claim 11, further comprising:

       changing a priority of at least one data access request, prior to the request being

satisfied by a storage node, to render an updated priority; and

       reordering data access requests at the storage nodes, based on the updated priority.

1   13.   The method of Claim 10, further comprising:

2   terminating at least one data access request, prior to the request being satisfied by a

3   storage node.

1   14.   The method of Claim 10, further comprising loosely synchronizing the computing and

2   storage nodes with each other.

1   15.   The method of Claim 10, wherein each storage node includes at least one storage

2   computer and at least one data storage device, and the storage computer sends no more than one data

3.   access request at a time to the data storage device, such that the data storage device cannot reorder

4   the sequence of responding to data access requests based on considerations internal to the data storage

5   device.

1   16.   The method of Claim 8, wherein the system is a virtual shared disk system.

1   17.   A computer program device comprising:

2   a computer program storage device readable by a digital processing apparatus; and

3   a program means on the program storage device and including instructions executable by the

4   digital processing apparatus for performing method steps for satisfying one or more data access

5   requests, the method steps comprising:

6   associating at least some of the data access requests with respective priorities; and

7   sending the priorities and the data access requests to a shared storage system, such that

8   the shared storage system can respond to the requests in consideration of the priorities.

1   18.   The computer program device of Claim 17, wherein the shared storage system is a

2   virtual shared disk system and at least some of the priorities are time-based deadlines.

1   19.   The computer program device of Claim 17, wherein the method steps further include:

2   changing a priority of at least one data access request, prior to the request being

3   satisfied by the shared storage system, to render an updated priority, such that data access

4   requests can be reordered in the shared storage system, based on the updated priority.

1   20.   The computer program device of Claim 19, wherein the method steps further comprise:

2   terminating at least one data access request, prior to the request being satisfied by the

3   shared storage system.

1   21.   The computer program device of Claim 17, wherein the method steps further comprise

2   loosely synchronizing the data access requests with each other.

1   22.   A computer program device comprising:

2   a computer program storage device readable by a digital processing apparatus; and

3   a program means on the program storage device and including instructions executable by the

4   digital processing apparatus for performing method steps for satisfying one or more data access

5   requests, the method steps comprising:

6   responding, with a memory system, to at least some of the data access requests based

7   on respective priorities, the priorities and the data access requests being sent to the memory

8   system.

1   23.   The computer program device of Claim 22, wherein the memory system is a shared

2   storage system and the priorities are time-based deadlines, the shared storage system including plural

3   storage nodes, each including at least one storage computer and at least one data storage device, the

4   method steps including sending no more than one data access request at a time to the data storage

5   device, such that the data storage device cannot reorder the sequence of responding to data access

6   requests based on considerations internal to the data storage device.

1   24.   The computer program device of Claim 23, wherein the method steps comprise

2   reordering data access requests at a storage computer in response to a changed priority message, prior

to the request being satisfied by the shared storage system.